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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,413	02/25/2004	Shigeru Yao	054160-5012-02	9813

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EXAMINER	
VO, HAI	

ART UNIT	PAPER NUMBER
1771	

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/785,413	YAO ET AL.	
	Examiner	Art Unit	
	Hai Vo	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The examiner is aware that the declaration signed by Yoshihiro Kusuki was filed on 09/30/2003 during the prosecution of the Patent Application No. 09/539,929 to overcome the art rejections over Tomioka et al (US 5,510,395). Since the declaration is not transferred over in the continuation of application, it is suggested that a copy of that declaration needs to be resubmitted and made of record in this present application file to ensure that Tomioka is disqualified as prior art.
2. All of the art rejections and the double patenting rejections are maintained. In addition, new ground of rejection is made in view of newly discovered reference of O'Neill et al (US 6,187,248).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 15-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 15 and 21 recite the limitation "side surface" There is insufficient antecedent basis for this limitation in the claim. It is not clear whether "both surfaces" and "the side surfaces" are directed to the same surfaces or to different surfaces.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 15-24, and 26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2-2856 substantially as set forth in the 09/08/2005 Office Action.

8. Claims 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2-2856 as applied to claims 15 and 21, in view of Dorval et al (US 5,547,833) substantially as set forth in the 09/08/2005 Office Action.

9. Claims 15-20, and 25 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over O'Neill et al (US 6,187,248). O'Neill teaches a nanoporous polyimide film useful as a dielectric layer for semiconductor devices (column 3, lines 45-55). O'Neill teaches the porous film having a thickness less than 10 microns overlapping with the claimed

range (column 4, 50-51). O'Neill teaches the porous film having a pore size of less than 0.03 microns, void volume of 54% and dielectric constant of 1.93 as shown in table 1. O'Neill teaches the porous film made from a film casting method which is basically similar to a third method as disclosed in the present specification. Therefore, the O'Neill porous film would inherently not have a dense layer on the either of the surfaces. O'Neill does not specifically disclose the heat shrinkage, gas permeability and continuous pore structure. However, It appears that O'Neill uses the same casting technique to form the porous film which has a thickness, void volume, dielectric constant and pore size within the claimed ranges. The porous film of O'Neill is found useful as a dielectric layer for semiconductor devices as the porous film of the present invention. Additionally, the continuous pore structure is dictated by the pore size, void volume and dielectric constant. The porous film of O'Neill apparently achieves all these physical characteristics. Hence, it is not seen that the porous film could have the heat shrinkage, gas permeability and continuous pore structure different from that of the present invention so as to achieve all listed physical characteristics and to be suitable as the dielectric layer for semiconductor devices. Accordingly, the heat shrinkage, gas permeability and continuous pore structure would be inherently present.

10. Claims 21-24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill et al (US 6,187,248) as applied to claim 15 above, further in view of Jasne et al (US 5,153,303). O'Neill does not specifically

disclose the polyimide formed from a biphenyltetracarboxylic acid and para-phenylene diamine. Jasne, however, teaches the polyimide film suitable as a dielectric layer for semiconductor devices can be made from a biphenyltetracarboxylic acid and para-phenylene diamine (column13, lines 53-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the polyimide film from a biphenyltetracarboxylic acid and para-phenylene diamine because it is well known in the polymer art to make thermally stable all aromatic polyimides by the condensation polymerization of dianhydrides and diamines.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

    A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

    Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 15-27 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 15-31 of copending Application No. 10/784,982 substantially as set forth in the 09/08/2005 Office Action.

Response to Arguments

13. The art rejections over JP 2-2856 taken alone and in combination with secondary reference have been maintained for the following reasons. Applicants argue that the dense layer is required by JP'856 and therefore JP'895 does not anticipated or strongly suggests the claimed subject matter. While it is true that in a preferred embodiment of the JP'856 invention, the porous insulating film contains a dense layer on one of its surfaces. However, turning to pages 9-11 of a complete English translation of the '856 patent, it is recognized that the film is fabricated by a casting method that is basically the same as a third method of the present invention which is intended to produce a porous insulating film without a dense layer. The polyimide was dissolved into a good solvent. The solution is cast into a film and subjected to treatment by exposure to vapor of a non-solvent for the polyimide, after which is contacted with a solidifying solvent to form pores. Therefore, it is the examiner's position that the porous insulating film will be inherently formed without a dense layer on one of its surfaces.

14. The double patenting rejections will not be withdrawn until the terminal disclaimer is submitted.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on Monday through Thursday, from 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hai Vo

HV

HAI VO
PRIMARY EXAMINER